



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/934,817	08/21/2001	Christian Wagner	(Z) 98003 P US	9363

7590

01/13/2003

M. Robert Kestenbaum  
11011 Bermuda Dunes NE  
Albuquerque, NM 87111

EXAMINER

LEROUX, ETIENNE PIERRE

ART UNIT

PAPER NUMBER

2171

DATE MAILED: 01/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
09/934,817

Applicant(s)  
Wagner et al

Examiner  
Etienne P LeRoux

Art Unit  
2171



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Dec 2, 2002
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/255,137.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other:

Art Unit: 2171

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 4, 36, 37, 43 and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by USPAT 4,739,396 to Hyatt.

Regarding claims 1, 3, 4, 36, 37, 43 and 44, Pat '396 discloses a light source [Fig 16, 1634] that emits radiation, a mount [Fig 16F, 1632], an optical element [Fig 16F, 1610] fastened in said mount, wherein said optical element [Fig 16F, 1610] is acted on by said radiation such that a heat supply results from said radiation that lacks symmetry corresponding to the shape of said optical element [Fig 13], and a connecting structure [Fig 16B, 1621] between said optical element [Fig 16F, 1610] and said mount [Fig 16F, 1632], having a symmetry characteristic that does not correspond to the shape of the optical element, a single- or multi-part thermally conducting element arranged in operative connection with said optical element and said mount and having a form of heat transport that effects an at least partial compensation of the asymmetry of temperature distribution I said optical element [Fig 16B, 1620, 1621, 1622, and Fig 16F, 1630 and 1632], at least one passively thermally conducting part arranged in thermal contact with said

Art Unit: 2171

optical element, which part covers a portion of the cross section of said optical element which is not exposed to said radiation, and which part reduces temperature gradients in said optical element [Fig 16F, 1633], wherein said passive thermally conducting element comprises an assembly of portions of different material [Fig 16F, 1630, and 1632/1633],

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-12, 17-35, 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPAT 5,805,273 to Unno (hereafter Pat '273) in view of USPAT 5,883,704 to Nishi et al (hereafter Pat '704).

Regarding claims 1-12, 17-24, 43 and 44, Pat '273 discloses a light source [Fig 1, 2] that emits radiation, an optical element [Fig 2, 41], wherein said optical element [Fig 2, 41] is acted on by said radiation such that a heat supply resulted from said radiation that lacks symmetry [Fig 2, 42] corresponding to the shape of said optical element [col 8, lines 20-28], a slit-shaped image field [Fig 1, 7], said optical element is arranged near a field plane [Fig 1, W]

Art Unit: 2171

Regarding claims 1-3, Pat '273 discloses above essential elements of the claimed invention except for a connecting structure between said optical element and said mount having a symmetry characteristic that does not correspond to the shape of the optical element. Pat '704 discloses a connecting structure between said optical element and said mount having a symmetry characteristic that does not correspond to the shape of the optical element [Fig 2, G1, G2, 4]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Pat '273 to include a connecting structure between said optical element and said mount having a symmetry characteristic that does not correspond to the shape of the optical element as taught by Pat '273 for the purpose of securing lens elements to the lens barrel to create a projection optical system [col 11, lines 23-24 and col 11, lines 33-39].

Regarding claims 2 and 3, Pat '273 discloses a single- or multi-part thermally conducting element arranged in operative connection with said optical element and said mount and having a form of heat transport that effects an at least partial compensation of the asymmetry of temperature distribution in said optical element [Fig 2, 13, 14]

Regarding claim 4, Pat '273 discloses at least one passively thermally conducting part arranged in thermal contact with said optical element, which part covers a portion of the cross section of said optical element which is not exposed to said radiation, and which part reduces temperature gradients in said optical element [Fig 2, 13, 14].

Regarding claims 25, 27 and 29, Pat '273 discloses a reticle [Fig 1, 8], the illumination of which lacks rotational symmetry [Fig 1].

Art Unit: 2171

Regarding claims 26, 28, 30, 32 and 33, Pat '273 discloses said reticle illumination consists of off-axis illumination [col 5, lines 24-27].

Regarding claims 31 and 34, Pat '273 discloses said optical element is arranged near a pupil plane [Fig 1, 3]

Regarding claim 35, the modified teaching of Pat '273 discloses the essential elements of the claimed invention except for said connecting structure comprises portions of different materials. It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Pat '273 to include said connecting structure comprises portions of different materials for the purpose of making the apparatus as economical as possible.

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Pat '273 and Pat '704 as applied to claim 1 above, and further in view of USPAT 3,626,176 to Tsugami (hereafter Pat '176).

Regarding claims 13-16, the modified teaching of Pat '273 discloses the essential elements of the claimed invention except for said optical element is a mirror. Pat '176 discloses said optical element is a mirror [Figs 1 and 2]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Pat '273 to include said optical element is a mirror as taught by Pat '176 for the purpose of preventing glass breakage of the reflecting mirror [abstract].

Art Unit: 2171

Claims 36-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Pat '273 and Pat '704 and further in view of USPAT 5,313,333 to O'Brien et al (hereafter Pat '333).

Regarding claims 36-38, Pat '273 discloses the essential elements of the claimed invention except for single- or multi-part passive thermally conducting element arranged in operative connection with said optical element and said mount and having a form of heat transport that effects an at least partial compensation of the asymmetry of temperature distribution in said optical element wherein said passive thermally conducting element comprises an assembly of portions of different material. Pat '333 discloses single- or multi-part passive thermally conducting element arranged in operative connection with said optical element and said mount and having a form of heat transport that effects an at least partial compensation of the asymmetry of temperature distribution in said optical element wherein said passive thermally conducting element comprises an assembly of portions of different material [Fig 1, 24, 26, 30, 44 and col 3, lines 10-43]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Pat '273 to include single- or multi-part passive thermally conducting element arranged in operative connection with said optical element and said mount and having a form of heat transport that effects an at least partial compensation of the asymmetry of temperature distribution in said optical element wherein said passive thermally conducting element comprises an assembly of portions of different material as taught by Pat '333 for the

Art Unit: 2171

purpose of compensating for thermal shifts in system focal length while maintaining radial and angular alignment of the lens relative to the laser diode source [abstract].

Regarding claims 39-42, the modified teaching of Pat '273 discloses the essential elements of the claimed invention except for said connecting structure comprises adjustable portions. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the connecting structure comprise adjustable portions, since it has been held that the provision of adjustability, where needed, involves only routine skill in the art. *In re Stevens*, 101 USPQ 284 (CCPA 1954).

#### ***Response to Arguments***

5. Applicant's arguments filed 12/02/2002 have been fully considered but they are not fully persuasive.

Applicant states on page 5, "As stated above, Tanaka and McCrary do not motivate or suggest to a person skilled in the art to combine these references to duplicate the claims of the present invention." Examiner is persuaded and thus above office action now rejects claims 1-12, 17-35, 43 and 44 over Pat '273 in view of Pat '704 which provides essential elements of the lens support structure which are not provided in Pat '273. As Pat '273 and Pat 704 are clearly analogous art, i.e. microlithography, it would have been obvious to one of ordinary skill in the art to combine these references. Additionally, in order to remove any possible doubt regarding prior art reading on the claimed invention, independent claims 1, 3, 4, 36, 37, 43 and 44 are also



Art Unit: 2171

rejected under 35 U.S.C. 102(b) as being anticipated by Pat '396 issued to Hyatt. Pat '396 teaches all the elements of the independent claims and thus there is no need to provide a motivation statement which Applicant might be tempted to challenge.

Applicant states on page 6, "In Fig 3 of Tanaka '077, as recited in the Office Action (page 3, point 4), describes a focus detecting system (col 2, lines 15-55). This is a subsystem of the projection optical apparatus (title) of which persons skilled in the art of such apparatus knows that it is a low-energy system (see lines 17-19), which will not disturb the wafer, where no thermal effects of any relevance will occur in the relatively simple optical system 17." Examiner is persuaded and thus above office action now provides now rejects instant claims over Pat '273 in view of Pat '704.

Applicant states on page 6, "Nowhere in Tokuhara is there any hint concerning thermal effects anywhere on any mirror, and consequently, no hint to a mode of dealing with such thermal effects is found." Examiner is persuaded and thus above office action now rejects claims 13-16 over the combination of Pat '273 and Pat '704 and further in view of Tsugami, Pat '176.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etienne (Steve) LeRoux whose telephone number is (703) 305-0620.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic, can be reached at (703) 308-1436.

Serial Number: 09/934,817

Page 9

Art Unit: 2171

Any inquiry of a general nature relating to the status of this application or processing procedure should be directed to the receptionist whose telephone number is (703) 305-3900.

Etienne LeRoux

January 9, 2003

*ELR*

  
SAFET METJAHIC  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100